

SECTION 07530 - ELASTOMERIC SHEET ROOFING

PART I - GENERAL

1.01 GENERAL CONDITIONS

As specified in Section 00700.

For reroofing projects, add to, delete from or modify this section to fit your project.

1.02 COORDINATION WITH OTHER SECTIONS

- A. Coordinate installation of metal edging, pitch pocket pans, gutters, counterflashing, etc. with SHEET METAL Section.
- B. Coordinate installation of vent pipe flashing and roof drains with PLUMBING Section as applicable.
- C. Coordinate installation of wood strips related to roofing with CONCRETE and CARPENTRY AND RELATED WORK Sections.

Be sure to call for coordination with this section in your SHEET METAL, PLUMBING, CONCRETE and CARPENTRY AND RELATED WORK Sections.

1.03 GENERAL REQUIREMENTS

- A. The roofing operations shall be so coordinated with appurtenant work such as sheet metal work that roof surfacing operations once started shall be continuous to completion.
- B. The Roofing Contractor shall be an approved applicator of the manufacturer whose roofing system he proposes to apply and his men shall have been trained by that manufacturer in the application of his system.
- C. The Contractor shall notify the local authorized representative of the manufacturer whose roofing system he proposes to use of his intent and shall arrange for the latter to attend the preconstruction conference and to inspect the roof surfaces and the roofing installation before application, at the actual start of application, at least once during application and at job completion.

Delete references to any and all materials which are not applicable to your job.

1.04 SUBMITTALS

- A. The contractor shall submit to the Engineer for approval five (5) complete sets of the manufacturer's materials and detailed installation specifications for the roofing system which he proposes to use. All materials except insulation, emulsion, coatings and the substrate cover board shall be as labeled or approved by one manufacturer.

- B. The Contractor shall submit to the Engineer a signed certificate from the proposed roofing system manufacturer showing that the Roofer is an authorized applicator of his assemblies.
- C. The Contractor shall submit to the Engineer for approval five (5) sets of shop drawings with the same numbering system as on the Contract Drawings. The drawings shall show the following:
 - 1. Outline of roof and roof dimensions.
 - 2. Locations and types of all roof penetrations.
 - 3. Total square feet of membrane required.
 - 4. Flashing widths and lineal feet required.
 - 5. Details of splices, walkways, joints, flashings, terminations, caps and penetrations.
 - 6. Warranty type and period.

1.05 PRODUCT HANDLING

- A. Delivery of Materials: All roofing materials shall be delivered to the site in the original unbroken manufacturer's wrapping material and containers with the original labels thereon intact.
 - B. Storage of Materials at Job Site
 - 1. Materials delivered and stored at the jobsite shall be protected from dirt, moisture, oil, high temperatures and physical damage.
 - 2. Insulation and any other materials which either absorb or are adversely affected by moisture shall be kept dry. Wet materials and/or materials which appear to have been deteriorated after getting wet shall not be permitted to be used on the job and shall be removed promptly.
 - 3. Materials containing solvents shall be stored in a dry, cool area with proper fire and safety precautions.
 - 4. If stored on other than the ground, all materials shall be distributed so that their resultant weight does not exceed the design live load on the deck (normally 20 lbs. per square foot on roofs and 40 lbs. per square foot on floors).
- Delete the word "insulation" when that material is not used.

1.06 PROTECTION AND CLEANING

A. Protection

1. Any work or materials damaged during roofing operations shall be restored to their original (undamaged) condition or replaced.
2. Protective coverings shall be installed at all pavement and exposed building walls as necessary to prevent the marring of existing surfaces.
3. Protection shall remain in place for the duration of the roofing work.

B. Cleaning

1. Debris from roofing work shall be removed from the premises and disposed of upon completion and the roof left in good, clean condition.
2. Any adhesives and cements splashed onto adjacent surfaces shall be removed completely, especially from flashings to which sealants must be bonded and/or metal flashings which are to be painted.
3. Gutters, downspouts, roof drains, etc. shall be cleaned out and all blockages shall be removed prior to acceptance of the project.

1.07 CAUTIONS AND WARNINGS

- A. Asphalt roofing cement shall not be used.
- B. Oil, grease, mineral solvents or live steam may be deleterious to certain membrane materials. The Contractor shall apprise the Engineer of and seek the advice of the roofing system manufacturer if such conditions are noted on the site.
- C. Vapors from bonding adhesives and lap cements may be harmful if breathed in. They may also be flammable. The Contractor should consult container labels and material safety data sheets for specific information on the products being used.

1.08 GUARANTY

- A. The Contractor shall furnish to the Engineer a written guaranty on the roofing and base flashing for a 2-year period after Project Acceptance Date. The guaranty shall **cover seams and damage resulting from lack of positive drainage (i.e. ponding conditions) and shall also** provide the following at no cost to the State:
1. Repair of roofing and flashing, as necessary to seal leaks which are attributable to faulty materials and/or workmanship;
 2. Repair or replacement of damage to the building and/or its finishes when occasioned by such leaks; and
 3. Inspection of the roofing together with the Engineer or his designated representative, on or about the 1st and 2nd anniversaries of the Project Acceptance Date, and repair or replacement of roofing as necessary to correct any deficiencies in workmanship or materials, such as by eliminating blisters exceeding 12" in any dimension or re-adhering open seams. Such repair or replacement of roofing shall be done in a manner which will preserve the integrity of the roofing membrane.
- B. The roofing system manufacturer shall submit to the Engineer a 10-year membrane system warranty. The warranty shall **cover seams and damage resulting from lack of positive drainage (i.e. ponding conditions), and shall also** provide the following at no additional cost to the State:

In the event of failure due to normal weathering and wind conditions during the remainder of the warranty period (the 3rd through 10th years after project acceptance) the roofing system manufacturer will make repairs as necessary to maintain the roof in watertight condition.

Be sure to require a 2-year guarantee on sheet metal counterflashing and sealing in your SHEET METAL Section.

NOTE: Under Tech Memo #53 dated July 16, 1997, the use of single-ply membranes under ponding conditions is restricted to EPDM systems. Therefore, under paragraphs 1.08 A and B, delete portion of sentence reading "and damage resulting from lack of positive drainage (i.e. ponding conditions)" when EPDM membranes are not specified.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. **[Insert paragraph from succeeding page and**

NOTE: The asbestos

revise alphabetical listing accordingly.]

prohibition clause has been deleted and is covered under Section 00700 - Interim General Conditions.

B. Membranes systems

1. Ethylene propylene diene monomer (EPDM)
2. Polyvinyl chloride (PVC)
3. Polyisobutylene (PIB)
4. Chlorosulfonated polyethylene (CSPE)
5. Chlorinated polyethylene (CPE)

- C. Roof Insulation: Standard brand complying with A.S.T.M. C726 (Mineral Fiber Roof Insulation Board), Federal Specifications HH-I-526C (mineral fiber) or HH-I-529B (mineral aggregate) or HI-1972 (polyisocyanurate only, polyurethane not permitted). Insulation shall have a minimum thermal resistance (R factor) of _____ btu/hr./sq./ft.

Delete this paragraph if insulation is not used. Be sure that insulation specified on metal decks will span the flute-to-flute clear span.

- D. Roof insulation for slope build-up: Uniform thickness and tapered insulation of the types in Subsection 2.01 D above. May also be pre-tapered EPS (expanded polystyrene) with min. 1/2" wood fiberboard or perlite board facing applied over the insulation in the field. (EPS insulation is permitted on combustible decks only where gravel-surfaced and mineral-surfaced cap sheet roofing is specified. Maximum slope of deck for latter is 1/2" per foot.)

Delete this paragraph if slope build-up is not part of the project scope.

Specify thickness if it is critical to the detailing.

NOTE: If the Contractor elects to use insulation with a thickness other than that shown on the plans, he shall be responsible to prepare any revised detail drawings and to coordinate with other trades as may become necessary because of the thickness change. Any additional costs to implement such a change shall be borne by the Contractor.

Note on appropriate plan details: "Insulation thickness assumed for plan details is _____ inches. Required changes (such as insulation stop thickness) shall be coordinated if actual thickness is other than as shown."

2.02 ROOFING ASSEMBLIES

A. General Requirements:

1. Roof covering shall be fire retardant either as stipulated in the Uniform Building Code or as approved in published U.B.C. reports. All materials shall be labeled in accordance with the appropriate requirements they meet, such as U.L. labeling.
2. Roofing materials shall conform to Federal

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and/or A.S.T.M. specifications as indicated.

Specify color if used.

3. Color of membrane/coating shall be
_____.

B. Built-Up Roofing Assemblies:

1. Roof insulation as called for in subparagraph 2.01 D. above shall be installed where shown on the plans.
2. Acceptable roofing membrane systems are listed in Table A.
3. Base and Miscellaneous Flashings shall be in accordance with the recommendations and details of the membrane manufacturer unless otherwise shown on the plans.

TABLE A

Table of Single Ply Membrane Systems

Manufacturer	Trade Name	Assembly No.	*Remarks

*In accordance with brochures on file with the State Division of Public Works			

Fill Table in from assemblies listed in Single Ply tables which fit your project requirements.

PART 3 - EXECUTION

3.01 INSPECTION OF SURFACES

Before the work under this section is started, the Roofer, together with the Contractor and the Engineer, shall examine all surfaces on which roofing will be placed and all adjoining work, including inserts, which will affect or be affected by the roofing work. All unacceptable areas and/or conditions such as those listed in subparagraph 3.02 A.3 shall be corrected by the contractor and verified and accepted by the Roofer prior to start of the work.

Include other related trades in the inspection group if/as applicable to your job (e.g., the sheet metal subcontractor where there are embedded reglets in parapet walls, etc.).

3.02 APPLICATION:

A. General:

1. No roofing shall be started in the absence of the engineer or his representative. The Contractor shall call the Engineer to give at

least one day (24 hours minimum) advance notice of the starting of roofing operations.

Delete paragraphs for decking which are not applicable to your job.

2. Absolutely no roofing shall be applied before the deck and the work in connection therewith have met the following conditions:
 - a. Wood decks shall be dry (moisture content 19% or less); smooth; free from loose materials; properly graded to outlets; and swept clean. Knot holes or loose knots over one inch in dia. and cracks over 3/8" wide shall be covered with 24-gauge galvanized sheet metal nailed in place.
 - b. Concrete decks shall be cured (minimum 7 days) and dry (a test spot pour of hot bitumen shall not froth, bubble or be removable by hand after cooling), smooth, free from loose materials, properly graded to outlets, and swept clean. All sharp projections and lumpy places shall have been removed.
 - c. Concrete fill shall be tested for adequate holding power before roofing is started. A fastener of the type proposed to be used shall be driven and pulled out. No roofing shall commence until a minimum resistance of 50 pounds has been attained.
 - d. Sheet metal panels for insulated steel decks shall be so secured to supporting framework and to each other, and shall be in such condition, that insulation will bear on each rib and not have to bridge over deck discontinuities.
 - e. Adjoining work, such as roof drains, metal edging, metal counterflashing and gutters shall either be in place, ready for the Roofer to work in, or shall be available for installation by others, as applicable. This work shall be coordinated so that the total roofing system will be watertight.

B. Insulation

Unless otherwise shown on the plans or specified herein, the application of insulation shall be in strict conformance with the recommendations and specifications of the manufacturer of the roofing assembly being used, as submitted to and approved by the Engineer.

C. Roofing Assembly

Unless otherwise shown on the plans or specified herein, the application of roofing shall be in strict conformance with the specifications of the manufacturer of the assembly being installed or material being used (such as coatings), as submitted to and approved by the Engineer.

3.03 INSTALLATION OF ADJOINING WORK

Unless otherwise shown on the plans, all adjoining work shall be done in accordance with the specifications and details of the manufacturer of the roofing assembly being used. The Contractor shall coordinate the Roofer's installation and any work that requires tying-in with the roofing so that the combined installation is leakproof.

Be sure to call for the furnishing of items of adjoining work in the appropriate specification sections.

END OF SECTION